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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/773,701

Confirmation No.: 7812

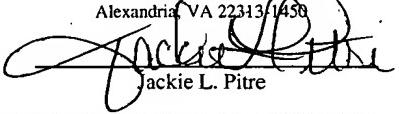
Filed: February 06, 2004

Inventors:

Lin et al.

Title: TETRACALCIUM
PHOSPHATE (TTCP)
HAVING CLACIUM
PSHOPHATE WHISKER ON
SURFACE AND PROCESS
FOR PREPARING SAME

§ Examiner: Theisen, Mary Lynn
§ Art Unit: 1754
§ Atty. Dkt. No: 5937-00205/EBM
§

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8	
DATE OF DEPOSIT: 4/20/05	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail on the date indicated above and is addressed to: Commissioner for Patents Alexandria, VA 22313-1450	
 Jackie L. Pitre	

INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

It is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents (references B1, B2, C1-C55, OA1-OA8 and PC1-PC8) are enclosed for the convenience of the Examiner.

Inventors: Lin et al.
Appl. Ser. No.: 10/773,701
Atty. Dckt. No.: 5937-00205

Applicant believes no fees are due with this submission. Should any other fees be required, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account No. 50-1505/5937-00205/EBM.

Respectfully submitted,

Eric B. Meyertons
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Date: 4/20/05



Form PTO-1449 (modified)
List of Patents and Publications
For Applicant's Information
Disclosure Statement
(Use several sheets if necessary)

ATTY. DOCKET NO: 5937-00205

SERIAL NO: 10/773,701

APPLICANT: Lin et al.

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U.S. PATENT DOCUMENTS

EXAM. INITIALS	REF. DES	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	P1	3679360	25-Jul-1972	Rubin et al.			
	P2	4371484	1-Feb-1984	Inukai et al.			
	P3	4481175	6-Nov-1984	Iino et al.			
	P4	4612053	16-Sep-1986	Brown et al.			
	P5	RE33161	6-Feb-1990	Brown et al.			
	P6	4959104	25-Sep-1990	Iino et al.			
	P7	5017518	21-May-1991	Hirayama et al.			
	P8	5053212	1-Oct-1991	Constantz et al.			
	P9	5092888	3-Mar-1992	Iwamoto et al.			
	P10	5164187	17-Nov-1992	Constantz et al.			
	P11	5149368	22-Sep-1992	Liu et al.			
	P12	5180426	19-Jan-1993	Sumita			
	P13	5262166	16-Nov-1993	Liu et al.			
	P14	5336264	9-Aug-1994	Constantz et al.			
	P15	5,342,441	30-Aug-1994	Mandai et al.			
	P16	5492768	20-Feb-1996	Okimatsu et al.			
	P17	5496399	5-Mar-1996	Ison et al.			
	P18	5503164	2-Apr-1996	Friedman			
	P19	5550172	27-Aug-1996	Regula et al.			
	P20	5652016	29-Jul-1997	Shiro et al.			
	P21	5683496	4-Nov-1997	Ison et al.			
	P22	5697981	16-Dec-1997	Ison et al.			

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Form PTO-1449 (modified) List of Patents and Publications For Applicant's Information Disclosure Statement (Use several sheets if necessary)	ATTY. DOCKET NO: 5937-00205 APPLICANT: Lin et al. FILING DATE: February 06, 2004	SERIAL NO: 10/773,701 ART UNIT: 1754 CONF. NO.: 7812
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	P23	5766669	16-Jun-1998	Pugh et al.			
	P24	5814681	29-Sep-1998	Hino et al.			
	P25	5820632	13-Oct-1998	Constantz et al.			
	P26	5846312	8-Dec-1998	Ison et al.			
	P27	5899939	4-May-1999	Boyce et al.			
	P28	5964932	12-Oct-1999	Ison et al.			
	P29	5993535	30-Nov-1999	Sawamura et al.			
	P30	6013591	11-Jan-2000	Ying et al.			
	P31	6117456	12-Sep-2000	Lee et al.			
	P32	6123731	26-Sep-2000	Boyce et al.			
	P33	6162258	19-Dec-2000	Scarborough et al.			
	P34	6277149	21-Aug-2001	Boyle et al.			
	P35	6294041	25-Sep-2001	Boyce et al.			
	P36	6294187	25-Sep-2001	Boyce et al.			
	P37	6325987	4-Dec-2001	Sapieszko et al.			
	P38	6332779	25-Dec-2001	Boyce et al.			
	P40	6440444	27-Aug-2002	Boyce et al.			
	P41	6478825	12-Nov-2002	Winterbottom et al.			
	P42	6530955	11-Mar-2003	Boyle et al.			
	P43	6585992	1-Jul-2003	Pugh et al.			
	PA1	20020019635	14-Feb-2002	Wenstrom, Jr. et al.			
	PA2	20020073894	20-Jun-2002	Genge et al.			
	PA3	20030031698	13-Feb-2003	Roeder et al.			

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FOREIGN PATENT DOCUMENTS

EXAM. INITIALS	REF. DES		DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATIO N. YES/NO
	B1	06-228011	16-Aug-1994	JP			Abstract
	B2	WO 03/055418	10-Jul-2003	PCT			

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

C1	Sugawara et al., "Calcium Phosphate Cement: An In Vitro study of Dentin Hypersensitivity", The Journal of the Japanese Society for Dental Materials and Devices, 1989, Vol. 8, pp. 282-294.
C2	Pickel et al., "The Effect of a Chewing Gum Containing Dicalcium Phosphate on Salivary Calcium and Phosphate", Ala. J. Med. Sci. 1965, Vol. 2, pp. 286-287.
C3	Matsuya et al., "Effects of pH on the Reactions of Tetracalcium Phosphate and Dicalcium Phosphate", IADR Abstact 1991.
C4	Sugawara et al., "Formation of Hydroxyapatite in Hydrogels from Tetracalcium Phosphate/Dicalcium Phosphate Mixtures," J. Nihon. Univ. Sch. Dent., 1989, Vol. 31, pp 372-381.
C5	Hong et al., The Periapical Tissue Reactions to a Calcium Phosphate Cement in the Teeth of Monkeys," J Biomed Mater Res April 1991, Vol. 25(4), pp. 485-98.
C6	DeRijk, et al., "Clinical Evaluation of a Hydroxyapatite Precipitate for the Treatment of Dentinal Hypersensitivity, Biomedical Engineering v. Recent Developments," Proc of 5th Southern Biomedical Engineering Conference, 1986, pp. 336-339. (Pergamon Press, New York)
C7	Gruninger et al. "Evaluation of the Biocompatibility of a New Calcium Phosphate Setting Cement," J. Dent Res. 1984, 63 Abst. No. 270 (4 pages).
C8	Costantino et al., "Evaluation of a New Hydroxyapatite Cement: Part III, Cranioplasty in a Cat Model, The Fifth Intl. Symposium on Facial Plastic Reconstructive Surgery of the Head and Neck, Toronto, Canada 1989. (18 pages)
C9	Shindo, et al., "Facial Skeletal Augmentation Using Hydroxyapatite Cement," Arch. Otolaryngol. Head Neck Surg. 1993, Vol. 119, pp. 185-190.
C10	Briner et al., "Significance of Enamel Remineralization", J. Dent. Res. 1974, Vol. 53, pp. 239-243.
C11	Silverstone, "Remineralization Phenomena", Caries Res. 1977, Vol. 11 (Supp. 1), pp. 59-84.
C12	Costantino et al., "Hydroxyapatite Cement--Basic Chemistry and Histologic Properties," Arch. of Otolaryngology--Head & Neck Surgery, 1991, Vol. 117, pp. 379-394.

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OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	C13	Friedman et al., "Hydroxyapatite Cement II. Obliteration and Reconstruction of the Cat Frontal Sinus," Arch. of Otolaryngology--Heady & Neck Surgery, 1991, Vol. 117, pp. 385-389.					
	C14	Contantino et al., "Experimental Hydroxyapatite Cement Cranioplasty," Plastic and Reconstructive Surgery, 1992, Vol. 90, No. 2, pp. 174-185.					
	C15	Miyazaki et al., "An Infrared Spectroscopic Study of Cement Formation of Polymeric Calcium Phosphate Cement," Jour of the Jap. Scoiety for Dent Mats & Devices, 1992, Vol. II, No. 2. (8 pages).					
	C16	Driskell et al., "Development of Ceramic and Ceramic Composite Devices for Maxillofacial Applications", J. Biomed. Mat. Res. 1972, Vol. 6, pp. 345-361.					
	C17	Hiatt et al., "Root Preparation I. Obduration of Dentinal Tubules in Treatment of Root Hypersensitivity", J. Periodontal, 1972, Vol. 43, pp. 373-380.					
	C18	Patel et al., "Solubility of CaHPO ₄ 2H ₂ O in the Quaternary System Ca(OH) ₂ --H ₃ PO ₄ --NaCl--H ₂ O at 25 °C.," J. Res. Nat. Bur. Stands. 1974, Vol. 78A, pp. 675-681.					
	C19	Salyer et al., "Porous Hydroxyapatite as an Onlay Bone-Graft Substitute for Maxillofacial Surgery," Presented at the 54 th Annual Scientific Meeting of the American Society of Plastic and Reconstructive Surgeons, Kansas City, Missouri, 1985, pp. 236-244.					
	C20	Kenney et al., "The Use of a Porous Hydroxyapatite Implant in Periodontal Defects," J. Periodontal, 1988, pp. 67-72.					
	C21	Zide et al., "Hydroxyapatite Cranioplasty Directly Over Dura," J. Oral Maxillofac Surg. 1987, Vol 45, pp. 481-486.					
	C22	Waite, et al., "Zygomatic Augmentation with Hydroxyapatite," J. Oral Maxillofac Surg 1986, pp. 349-352.					
	C23	Verwoerd, et al. "Porous Hydroxyapatite-perichondrium Graft in Cricoid Reconstruction, Acta Otolaryngol" 1987, Vol. 103, pp. 496-502.					
	C24	Grote, "Tympanoplasty With Calcium Phosphate," Arch Otolaryngology 1984, Vol. 110, pp. 197-199.					
	C25	Kent et al., "Alveolar Ridge Augmentation Using Nonresorbable Hydroxyapatite with or without Autogenous Cancellous Bone," J. Oral Maxillofac Surg 1983, Vol. 41, pp. 629-642.					
	C26	Piecuch, "Augmentation of the Atrophic Edentulous Ridge with Porous Replamineform Hydroxyapatite (Interpore-200)", Dental Clinics of North America 1985, Vol. 30(2), pp. 291-305.					
	C27	Misch, "Maxillary Sinus Augmentation for Endosteal Implants: Organized Alternative Treatment Plans," Int J Oral Implant 1987, Vol. 4(2), pp. 49-58.					
	C28	Chohayeb, A. A. et al., "Evaluation of Calcium Phosphate as a Root Canal Sealer-Filler Material," J Endod 1987, Vol. 13, pp. 384-386.					
	C29	Brown et al., "Crystallography of Tetracalcium Phosphate," Journal of Research of the National Bureau of Standards. A. Physics and Chemistry. 1965, Vol. 69A, pp. 547-551.					

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C30	Sanin et al. "Particle Size Effects on pH and Strength of Calcium Phosphate Cement," IADR Abstract 1991.
C31	Chow et al., "X-ray Diffraction and Electron Microscopic Characterization of Calcium Phosphate Cement Setting Reactions," IADR Abstract, 1987. (1 page)
C32	Block et al. "Correction of Vertical Orbital Dystopia with a Hydroxyapatite Orbital Floor Graft," J. Oral Maxillofac Surg 1988, Vol. 46, pp. 420-425.
C33	Brown, "Solubilities of Phosphates and Other Sparingly Soluble Compounds", Environmental Phosphorous Handbook 1973, pp. 203-239. (John Wiley & Sons, New York)
C35	Gregory et al., "Solubility of CaHPO ₄ 2H ₂ O in the System Ca(OH) ₂ --H ₃ PO ₄ --H ₂ O at 5, 15, 25, and 37.5 °C.," J. Res. Nat. Bur. Stand. 1970, Vol 74A, pp. 461-475.
C36	Gregory et al., "Solubility of β--Ca ₃ (PO ₄) ₂ in the System Ca(OH) ₂ --H ₃ PO ₄ --H ₂ O at 5, 15, 25 and 37° C.," J. Res. Nat. Bur. Stand., 1974, Vol. 78A, pp. 667-674.
C37	McDowell et al., "Solubility of B--Ca ₅ (PO ₄) ₃ OH in the System Ca(OH) ₂ --H ₃ PO ₄ --H ₂ O at 5, 15, 25 and 37 °C.," J. Res. Nat. Bur. Stand. 1977, Vol. 91A, pp. 273-281.
C38	McDowell et al., "Solubility Study of Calcium Hydrogen Phosphate. Ion Pair Formation," Inorg. Chem. 1971, Vol. 10, pp. 1638-1643.
C39	Moreno et al., "Stability of Dicalcium Phosphate Dihydrate in Aqueous Solutions and Solubility of Octocalcium Phosphate," Soil Sci. Soc. Am. Proc. 1960, Vol 21, pp. 99-102.
C40	Chow et al, "Self-Setting Calcium Phosphate Cements," Mat. Res. Soc. Symp. Proc. pp. 3-23.
C41	Miyazaki et al., "Chemical Change of Hardened PCA/CPC Cements in Various Storing Solutions", The Journal of the Japanese Soc. for Dental Materials and Devices, 1992, Vol. 11, No. 2.
C42	Fukase et al, "Thermal Conductivity of Calcium Phosphate Cement", IADR Abstract, 1990 (1 page).
C43	Sugawara et al. "Biocompatibility and Osteoconductivity of Calcium Phosphate Cement", IADR Abstract 1990. (1 page)
C44	Miyazaki et al., "Polymeric Calcium Phosphate Cements", IADR Abstract 1990. (1 page).
C45	Link et al., "Composite of Calcium Phosphate Cement and Genetically Engineered Protein Bioadhesive," IADR Abstract 1991. (1 page)
C46	Matsuya et al., "Effects of pH on the Reactions of Tetracalcium Phosphate and Dicalcium Phosphate", IADR Abstract 1991. (1 page).
C47	Briner et al., "Significance of Enamel Remineralization", J. Dent. Res. 1974, Vol. 53, pp. 239-243.
C48	Chow, "Development of Self-Setting Calcium Phosphate Cements", Journal of The Ceramic Society of Japan, 1991, Vol. 99 [10], pp. 954-964.

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C49	Brown et al., A New Calcium Phosphate, Water Setting Cement, Cements Research Progress 1986, P. W. Brown, Ed., Westerville, Ohio: American Ceramic Society, 1988, pp. 352-379.
C50	Sugawara et al., "Evaluation of Calcium Phosphate as a Root Canal Sealer-Filler Material" IADR/AADR Abstract, 1987, (3 pages).
C51	Sugawara et al., "In Vitro Evaluation of the Sealing Ability of a Calcium Phosphate Cement When Used as a Root Canal Sealer Filler," J. Endodontics, 1989, Vol 16, pp 162-165.
C52	Chow, "Calcium Phosphate Materials: Reactor Response" Adv Dent Res 1988, Vol 2(1), pp. 181-184.
C53	Fukase et al., "Setting Reactions and Compressive Strengths of Calcium Phosphate Cements", J Dent Res 1990, Vol 69(12), pp. 1852-1856.
C54	Miyazaki et al., "Chemical Change of Hardened PCA/CPC Cements in Various Storing Solutions", The Journal of the Japanese Soc. for Dental Materials and Devices, 1992, Vol. 11, No. 2, pp.48-64.
C55	Sugawara et al. "Formation of Hydroxyapatite in Hydrogels from Tetracalcium Phosphate/Dicalcium Phosphate Mixtures,"
C56	Chow et al. "A Natural Bone cement-A Laboratory Novelty Led to the Development of Revolutionary New Biomaterials", Journal of Research of the National Institute of Standards and Technology, 2001, Vol. 106, pp. 1029-1033.
OA1	U.S. Patent and Trademark Office, "Office communication" for U.S. Application Serial No. 10/944,278 mailed February 22, 2005 (8 pages).
OA3	U.S. Patent and Trademark Office, "Office Communication" for U.S. Application Serial No. 09/615,384, mailed Jan. 16, 2003.
OA4	U.S. Patent and Trademark Office, "Office Communication" for U.S. Application Serial No. 09/615,384, mailed March 22, 2002.
OA5	U.S. Patent and Trademark Office, "Office Communication" for U.S. Application Serial No. 09/615,384, mailed October 18, 2001.
OA6	U.S. Patent and Trademark Office, "Office Communication" for U.S. Application Serial No. 10/328,019, mailed Feb. 25, 2004.
OA7	U.S. Patent and Trademark Office, "Office Communication" for U.S. Application Serial No. 10/414,582, mailed Jun. 17, 2004.
OA8	U.S. Patent and Trademark Office, "Office Communication" for U.S. Application Serial No. 10/607,023, mailed Jul. 18, 2004.
WO1	PCT/US04/11637 International Search Report/Written Opinion, mailed Oct. 14, 2004
WO2	EPO Communication, EP 01117041.2-1219, mailed March 11, 2005, 4 pages

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	PC1	Claims from Co-Pending United States Patent Appl. Ser. No. 10/773,701, 3 pages					
	PC2	Claims from Co-Pending United States Patent Appl. Ser. No. 10/944,278, 3 pages					
	PC3	Claims from Co-Pending United States Patent Appl. Ser. No. 10/940,922, 4 pages					
	PC4	Claims from Co-Pending United States Patent Appl. Ser. No. 10/780,728, 6 pages					
	PC5	Claims from Co-Pending United States Patent Appl. Ser. No. 10/852,167, 7 pages					
	PC6	Claims from Co-Pending United States Patent Appl. Ser. No. 10/982,660, 3 pages					
	PC7	Claims from Co-Pending United States Patent Appl. Ser. No. 10/145,901, 3 pages					
	PC8	Claims from Co-Pending United States Patent Appl. Ser. No. 10/607,023, 1 page					
	PC9	Claims from Co-Pending United States Patent Appl. Ser. No. 10/414,582, 5 pages					
	PC10	Claims from Co-Pending United States Patent Appl. Ser. No. 10/633,511, 6 pages					

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